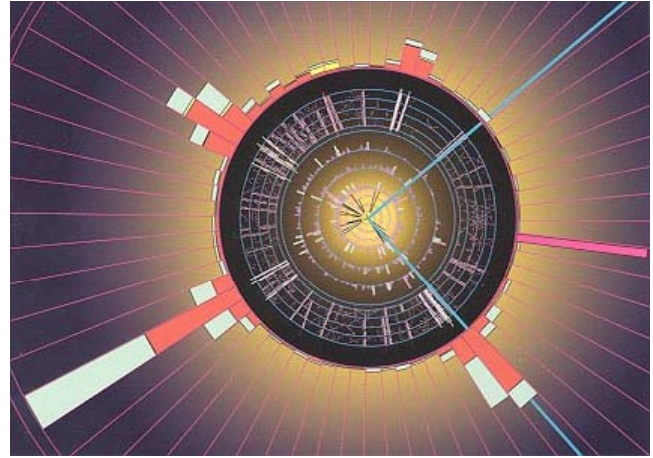




# The D-Zero Experiment at Fermilab

## Who are we?

D-Zero is an international collaboration of roughly 600 university scientists and students from 18 nations who have pooled their resources to build and operate a decades-long scientific experiment at Fermilab in Illinois, the world's highest energy particle accelerator.



## What are we doing?

The goal of the experiment is to better understand the basic recipe for the way the universe is built. If you wanted to make this universe, how many dimensions of space and time would you need, what kinds of forces and particles would you put in, and how?

To answer these questions we collide protons and antiprotons at very high energies, and use a sensitive array of instrumentation to study the high energy particles that are made in these collisions.



## Science . . .

Using data we collected from 1992 to 1995, we have published over 140 papers in world renowned scientific journals — including the discovery of the top quark in 1995. In 2001 we embarked on a new phase of the experiment with upgraded apparatus that should enable us to make major discoveries about the nature of the universe.

## . . . and Education

Young scientists are an integral part of the project and play key leadership roles. Almost a quarter of the physicists working on the experiment are doing research towards a graduate degree at one of our member universities in the US, Europe, Latin America and Asia. Over a hundred Ph.D. degrees have been awarded so far. Most of these students have gone on to postdoctoral fellowships, followed by careers in academia, research laboratories across the world, industries ranging from biomedical research to information technology, the financial and legal professions, and government.





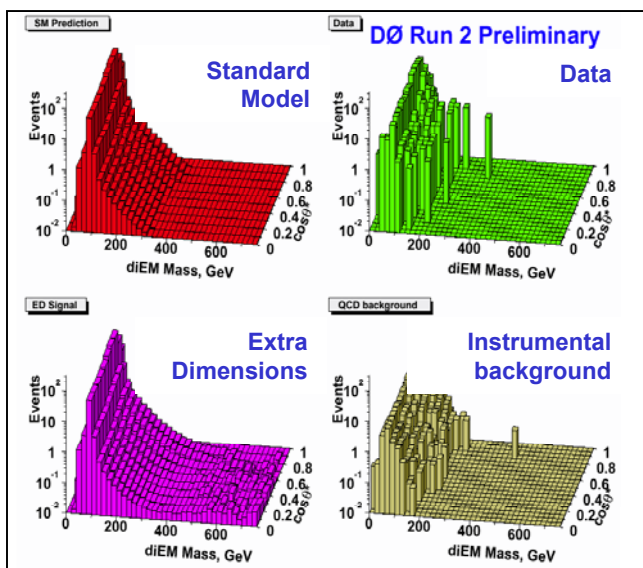
## How does this help international relations?

Roughly half of the collaboration comes from US universities and half from overseas. Working together with a common goal, young researchers find they have much to learn from each other. Traditional barriers are broken down. The opportunity to experience America first hand and to be part of an open, world class research project changes preconceptions and builds a very positive image of what the nation stands for. We provide support for researchers in developing countries, allowing them to participate fully in cutting edge scientific research.

We collaborate with universities in Argentina, Brazil, China, Colombia, the Czech Republic, Ecuador, France, Germany, India, Ireland, Korea, Mexico, the Netherlands, Russia, Sweden, the U.K., and Vietnam.

## What use is this knowledge?

Firstly, our experiments need **cutting-edge technology and computing** and so they promote R&D in many fields (the World Wide Web was first developed to share data in particle physics). Secondly, if history is any guide, the **physics we uncover will be the basis for technologies** twenty or fifty years from now. Thirdly, and most importantly to us as scientists, is simply the human desire to **explore and understand the universe we live in**.



Gerald Blazey ([gblazey@niu.edu](mailto:gblazey@niu.edu)) and John Womersley ([womersley@fnal.gov](mailto:womersley@fnal.gov))  
Co-spokespersons of the D-Zero Experiment



Fermilab is a Department of Energy National Laboratory • Fermilab, P.O. Box 500, Batavia, IL 60510  
Visit D-Zero on the web and see our latest physics results at: [www-d0.fnal.gov](http://www-d0.fnal.gov)